

CLAIMS

What is claimed is:

1 1. A storage device in which file data is written on a recording medium, said file data being
2 divided into multiple blocks for recording on said recording medium, said storage device
3 comprising:

4 an additional data storing section for storing additional data to be recorded on said
5 recording medium in association with said file data to be written, said file data being
6 unincorporated with said additional data;

7 a recording position determining section for determining recording positions on said
8 recording medium based on said additional data associated with a respective block from said
9 multiple blocks, each said recording position being a block gap away from a previously written
10 block, said block gap having a physical length defined by said additional data; and

11 a block writing section for writing the respective blocks to the recording positions on said
12 recording medium determined by said recording position determining section, wherein an error is
13 detected if a length of said block gap, for a particular block, does not comport with said
14 additional data for said particular block.

1 2. The storage device according to Claim 1, wherein said recording medium is a magnetic
2 tape.

1 3. The storage device according to Claim 1, wherein said additional data is electronic
2 watermarking data for identifying said file data to be written, and said storage device further
3 comprises:

4 a block reading section for reading said multiple blocks from said recording medium;

5 a recording position acquiring section for acquiring recording positions on said recording
6 medium where said multiple blocks are respectively recorded; and

7 a block readout inhibiting section for inhibiting said multiple blocks from being read by
8 said block reading section when said reading positions acquired by said recording position

9 acquiring section do not correspond to said electronic watermarking data to be recorded in
10 association with said data to be written.

1 4. The storage device according to Claim 3,
2 wherein said block reading section sequentially reads said multiple blocks;
3 said recording position acquiring section sequentially acquires the recording positions of
4 said multiple blocks read by said block reading section; and
5 said block readout inhibiting section inhibits one block and subsequent blocks in said
6 multiple blocks from being read when the recording position of said one block acquired by said
7 recording position acquiring section does not correspond to said electronic watermarking data
8 recorded in association with said file data to be written.

1 5. The storage device according to Claim 3,
2 wherein said recording position acquiring section acquires the recording positions
3 corresponding to said multiple blocks when said recording medium is mounted on said storage
4 device; and
5 said block readout inhibiting section inhibits said multiple blocks from being read by said
6 block reading section when said recording positions do not correspond to said electronic
7 watermarking data recorded in association with said file data to be written.

1 6. The storage device according to Claim 1,
2 wherein said block writing section, when it is impossible to write one block to a
3 recording position on said recording medium where said one block should be written, writes said
4 one block as well as recording position change information indicating that the recording position
5 of said one block has been changed to another recording position different from the recording
6 position where said one block should have been written.

1 7. A storage device for reading data, said data being divided into multiple blocks and
2 recorded on a first recording medium, said storage device comprising:
3 a block reading section for reading said blocks from said first recording medium;

4 a recording position acquiring section for acquiring recording positions on said first
5 recording medium where said blocks are respectively recorded; and

6 an additional data extracting section for extracting additional data recorded on said first
7 recording medium in association with said data to be read, from said recording positions
8 acquired by said recording position acquiring section.

1 8. The storage device according to Claim 7, further comprising:

2 a recording position determining section for determining recording positions on a second
3 recording medium where said multiple blocks should be respectively written, based on said
4 additional data; and

5 a block writing section for writing said multiple blocks to the recording positions on said
6 second recording medium determined by said recording position determining section.

1 9. A computer program product, residing on a computer usable medium, for recording file
2 data, said file data being divided into multiple blocks and recorded on a recording medium, said
3 computer program product comprising:

4 program code for storing additional data to be recorded on said recording medium in
5 association with said file data to be written, said file data being unincorporated with said
6 additional data;

7 program code for determining recording positions on said recording medium based on
8 said additional data associated with a respective block of said multiple blocks, each said
9 recording position being a block gap away from a previously written block, said block gap
10 having a physical length defined by said additional data; and

11 program code for writing the respective blocks to the recording positions on said
12 recording medium determined by said recording position determining section, wherein an error is
13 detected if a length of said block gap, for a particular block, does not comport with said
14 additional data for said particular block.

1 10. A method for controlling a storage device in which data to be written is divided into
2 multiple blocks and recorded on a recording medium, said method comprising:

3 an additional data storing step of storing additional data to be recorded on said recording
4 medium in association with said data to be written;

5 a recording position determining step of determining recording positions on said
6 recording medium based on said additional data to which the blocks produced by dividing said
7 data to be written are respectively written; and

8 a block writing step of writing the respective blocks to the recording positions on said
9 recording medium determined by said recording position determining step.

1 11. A method for controlling a storage device for reading data, said data being divided into
2 multiple blocks and recorded on a first recording medium, said method comprising:

3 a block reading step of reading said blocks from said first recording medium;

4 a recording position acquiring step of acquiring recording positions on said first recording
5 medium where said blocks are respectively recorded; and

6 an additional data extracting step of extracting additional data recorded on said first
7 recording medium in association with said data to be read, from said recording positions
8 acquired by said recording position acquiring step.